REMARKS

Reconsideration and allowance of this application, as amended, are respectfully requested. The Abstract, written description, and claims 1-11 have been amended. New claims 12 and 13 have been added. Claims 1-13 are now pending in the application. The rejections are respectfully submitted to be obviated in view of the amendments and remarks presented herein.

Applicants acknowledge with gratitude the indication that claims 4/3/1 and 4/3/2 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In the Amendment, therefore, claims 4/3/1 and 4/3/2 have been rewritten in independent form, and should be allowable. New claim 12 has been added to include all of the limitations of independent claim 1 and dependent claims 3 and 4. New claim 13 have been added to include all of the limitations of independent claim 2 and dependent claims 3 and 4.

As required by the Office Action, a proposed drawing correction is being filed concurrently herewith in which the label --Prior Art-- is added to Figure 2. Accordingly, the Examiner is requested to approve the proposed drawing correction and withdraw the outstanding objections to the drawings.

As also required by the Office Action, the Abstract has been amended. The written description has been editorially amended at page 7, line 11, to complete the sentence. Accordingly, the objection to the specification should be withdrawn.

35 U.S.C. § 112, Second Paragraph

Claims 1-11 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. In response, the claims have been editorially amended. With respect to the ground of rejection associated with radial distances "a" and "b," Applicants note that the radial distances "a" and "b" in claim 4, lines 3-4, are defined at specification page 6,

lines 22-25. Accordingly, the rejection of claims 1-11 under 35 U.S.C. § 112, second paragraph, should be withdrawn.

35 U.S.C. § 102(b) - Narita

Claims 1 and 10 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Narita et al. (JP 11-103545 A) (hereinafter "Narita"). Reconsideration is respectfully requested.

Applicants' claimed invention relates to a rotor, and the essential features will be explained with reference to claims 1 and 10 and Fig. 1. According to the present invention, the radial direction distance between the outer peripheral side of the magnetic flux short circuit preventive hole 3 and the outer peripheral side of the rotor core 9 is increased gradually in conformity to the approach to the q-axis from the d-axis. Referring to Fig. 1, this is shown as a<b. Accordingly, in the range of a, in conformity to the approach to the q-axis side from the d-axis side, since the magnetic flux which flows from the rotor 1 to the stator 5 is reduced gradually, the change of the magnetic flux density distribution becomes smooth. Viewing from the outer peripheral face of the rotor, in the range of θb, the magnetic flux density distribution is substantially constant and becomes the maximum.

Since the magnetic flux of the permanent magnet becomes zero at the position of the q-axis, with the construction of the magnetic flux short circuit preventive hole 3 shown in the present invention, in the range of θa, the magnetic flux is reduced gradually and it presents a trapezoid shape when it is considered as one pole part (the amount of one pole).

The disclosure of Narita does not anticipate the claimed invention. Narita refers to a motor with a rotor. As shown in Narita's Fig. 26, the radial direction distance between the outer peripheral side of the magnetic flux short circuit preventive hole and the outer peripheral side of the rotor core appears to be formed so as to be constant. From Narita's Fig. 26, the radial direction distance between the outer peripheral side of the magnetic flux short circuit preventive hole and the outer peripheral side of the rotor core is not

"increased gradually in conformity to the approach to d-axis from q-axis" as recited in claim 1 of the instant application. Correspondingly, the radial distance between the outer peripheral side of the magnetic flux short circuit preventive hole and the outer peripheral side of the rotor core is also not "increased gradually in conformity to the approach to the poles from an interpolar position" as recited in claim 10 of the instant application.

Furthermore, with the construction of the magnetic flux short circuit preventive hole shown in Narita, the apparatus has the effect for the short circuit prevention of the magnet magnetic flux, but the apparatus will not have the effect for smoothing the magnetic flux density distribution. That is, when viewed from the rotor outer peripheral face, in the range of θa, since the core portion is formed abruptly narrower (thin), from the range of θa the magnetic flux hardly flows into the stator, and it presents the rectangle shape when it is considered as one pole part (the amount of one pole). At least by virtue of the aforementioned structural difference, Applicants' claimed invention distinguishes over Narita. Reconsideration and withdrawal of the rejection under § 102(b) are respectfully requested.

35 U.S.C. § 102(e) - Sakai

Claims 1, 2, 3/1, 3/2, 10 and 11 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Sakai et al. (U.S. 6,274,960) (hereinafter "Sakai"). Reconsideration is respectfully requested.

According to the present invention, as stated above, the radial direction distance between the outer peripheral side of the magnetic flux short circuit preventive hole 3 and the outer peripheral side of the rotor core 9 is increased gradually in conformity to the approach to the q-axis from the d-axis. Referring to Fig. 1 of the instant application, this is shown as a<b.

The disclosure of Sakai does not anticipate the claimed invention. In Sakai, the arrangement of the magnetic flux short circuit preventive hole differs from Applicants' claimed arrangement of the magnetic flux short circuit preventive hole 3. In the

arrangement of Sakai's magnetic flux short circuit preventive hole, the radial direction distance between the outer peripheral side of the magnetic flux short circuit preventive hole and the outer peripheral side of the rotor core is constant.

To reduce cogging torque, it is necessary to smoothly form the distribution in the case where the magnetic flux of the magnet flows from the rotor side to the stator side. However, when the radial direction distance between the outer peripheral side of the magnetic flux short circuit preventive hole and the outer peripheral side of the rotor core is constant, there is no effect for smoothly forming the distribution of the magnetic flux of the magnet. Accordingly, Applicants' claimed invention distinguishes over Sakai. Reconsideration and withdrawal of the rejection under § 102(e) are respectfully requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of claims 1-11 and to pass this application to issue.

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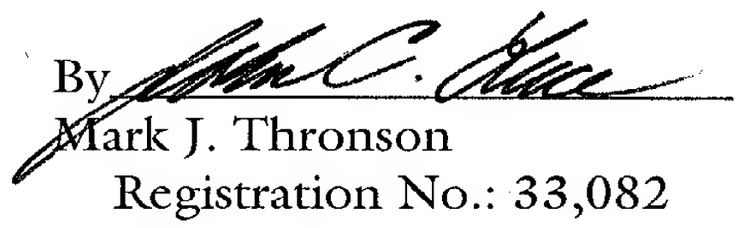
Respectfully submitted,

By 

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